RHIC Physics fy05 Run
Daily Quench Analysis for the month of November 2004

Machine-Setup for Physics RHIC Run-5, Cu-Cu

Blue Ring Officially handed over to MCR on November 28, 2004 at 16:00hours, start of the Blue Ring Counters has begun with MS-001.

***Monday-November 29, 2004*: MS-001, Blue Quench: File# = 1101718859**
Permit ID: **8b-ps1** Timestamp: **04:00:56 +3674613** Beam Permit Fail Timestamp: **04:00:56 +3666624**
QPAControl / Timing Resolver: No QPA faults listed, Group 1: b-QD QLI first to trip.
Quench Detector(s) Trip: 8b-qd1, B7QFQ2_VT, Int. 1, Tq: -24
5 Minute: Quench Delay File: Voltage Tap = B7QFQ2_VT
Beam Loss Monitors (Rads/Hr): Several High points: g7-lm1 = 4861, b7-lm3.1 = 2226 & b7-lm0 = 4633.
Main Magnet Power Status: Ramping to Store Energy.
DX Heaters: None fired.

Technical Notes / Sequence of Events: Blue quench link trip was caused by the 8b-qd1-quench detector. The quench detector tripped because of a real magnet quench at B7QFQ2_VT. The beam permit tripped .008 sec before the quench link. There was a real magnet quench at b7q2. There was a moderate beam loss at g7-lm1 for over 1 sec. There is now 1 beam induced quench for this run. -Ganetis [quench]
QLI Recovery TAPE Start: **04:11:59**
Link Recovered Time: **Task paused due to an error at b2-dh0-ps, on check failed (Stby-Error).**

Quench Analysis: Beam Induced Quench, #001
(Counter = BI)

***Monday-November 29, 2004*: MS-002, Blue Quench: File# = 1101720690**
Permit ID: **6b-ps1** Timestamp: **04:31:28 +2745692** Beam Permit Fail Timestamp: **Down from MS-001**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP10-R6BD3-b6-dh0-qp first to fail.
Quench Detector(s) Trip: Main Systems Running, Auxiliary Trips as follows:

Blue Aux 1 Quenched [Signal BI1-SXD-VT Int. 1] @ 11/29/2004 04:15:05 [rhicMode: CUCU1]
Blue Aux 1 Quenched [Signal BO3-SXD-VT Int. 1] @ 11/29/2004 04:15:06 [rhicMode: CUCU1]
Blue Aux 1 Quenched [Signal BI5-SXD-VT Int. 1] @ 11/29/2004 04:15:06 [rhicMode: CUCU1]
Blue Aux 1 Quenched [Signal BO7-SXD-VT Int. 1] @ 11/29/2004 04:15:05 [rhicMode: CUCU1]
Blue Aux 1 Quenched [Signal BI9-SXD-VT Int. 1] @ 11/29/2004 04:15:06 [rhicMode: CUCU1]
Blue Aux 1 Quenched [Signal BO11-SXD-VT Int. 5] @ 11/29/2004 04:15:06 [rhicMode: CUCU1]

5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: Park Current
DX Heaters: None fired.

Technical Notes / Sequence of Events: Blue quench link trip was caused by b6-dh0-ps when the p.s. was being turned on. The p.s. had an error fault. Ganetis [quench]
QLI Recovery TAPE Start: **04:33:48**
Link Recovered Time: **Task paused due to an error at b2-dh0-ps, on check failed (Stby-Error).**

Quench Analysis: Power Supply Fault, b6-dh0-ps
(Counter = IR)

Monday-November 29, 2004: **MS-003, Blue Quench: File# = 1101721324**
Permit ID: **6b-ps1** Timestamp: **04:42:04 +704590** Beam Permit Fail Timestamp: **Down from MS-001**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP10-R6BD3-b6-dh0-qp first to fail.
Quench Detector(s) Trip: Main Systems Running, Auxiliary Systems Running.
5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: Park Current
DX Heaters: None fired.

Technical Notes / Sequence of Events: Blue quench link trip was caused by b6-dh0-ps when the p.s. was being turned on. The p.s. had an error fault. Ganetis [quench]
QLI Recovery TAPE Start: **04:51:59** Link Recovered Time: Estimated Down Time:

Quench Analysis: Power Supply Fault, b6-dh0-ps
(Counter = IR)

Monday-November 29, 2004: **MS-004, Blue Quench: File# = 1101723501**
Permit ID: **6b-ps1** Timestamp: **05:18:20 +1302436** Beam Permit Fail Timestamp: **Down from MS-001**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP10-R6BD3-b6-dh0-qp first to fail.
Quench Detector(s) Trip: Main Systems Running, Auxiliary Systems Running.
5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: Park Current
DX Heaters: None fired.

Technical Notes / Sequence of Events: G. Ganetis reported to MCR that 6b-dh0 has been tripping off at turn on when issued by the quench recovery program. D. Bruno was then contacted and he has J. Drozd & B. Karpin coming in to repair the power supply. -BvK [rhic] [ps]
QLI Recovery TAPE Start: **06:50:33** Link Recovered Time: Estimated Down Time:

Quench Analysis: Power Supply Fault, b6-dh0-ps
(Counter = IR)

Monday-November 29, 2004: **MS-005, Blue Quench: File# = 1101730528**
Permit ID: **6b-ps1** Timestamp: **07:15:28 +210110** Beam Permit Fail Timestamp: **Down from MS-001**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP10-R6BD3-b6-dh0-qp first to fail.
Quench Detector(s) Trip: Main Systems Running, Auxiliary Systems Running.
5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: Zero Current
DX Heaters: None fired.

Technical Notes / Sequence of Events: Spoke to Joe Drozd. Found a problem with the time delay circuit for the power supply. They have to replace a resistor. Estimate 1/2 hr. –Sanjee
QLI Recovery TAPE Start: **08:08:07** Link Recovered Time: **08:16:01** Estimated Down Time: **255** minutes

Quench Analysis: Power Supply Fault, b6-dh0-ps
(Counter = IR)

Monday-November 29, 2004: **MS-006, Blue Quench: File# = 1101735024**
Permit ID: **4b-time.A** Timestamp: **08:30:24 +460662** Beam Permit Fail Timestamp: **08:30:24 +460693**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP11-R4BD2-b4-dhx-qp first to fail.
Quench Detector(s) Trip: All tripped, no negative Tq values.
5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: Injection Current
DX Heaters: Indications of Reset Node Card, none fired.

Technical Notes / Sequence of Events: While a Technician was sizing up a safety cover to eliminate accidental trips to off as has occurred during the summer, the off switch was slightly pushed, causing the UPS to shutdown. Heppner
QLI Recovery TAPE Start: **08:45:43** Link Recovered Time: **08:58:08** Estimated Down Time: **14** minutes

Quench Analysis: Tech Error, UPS at 1004B accidentally shut off.
(Counter = Other)

Scheduled Maintenance: 0830 to 1530

Monday-November 29, 2004: **MS-007, Blue Quench: File# = 1101738253**
Permit ID: **4b-time.A** Timestamp: **09:24:12 +1885277**
(Counter = Maintenance)

Technical Notes / Sequence of Events:
1) Repair all Resistors to the Soft Start Relays in Blue and Yellow Stand Alone Dynapower power supplies.
2) Replace the following 50 amp Corrector power supplies:
    a. Yi6-th3
    b. Yi6-th7

Monday-November 29, 2004: Maintenance Recovery **Blue Quench: File# = 1101758624**
Permit ID: **9b-ps1** Timestamp: **15:03:44 +438936** Beam Permit Fail Timestamp: **08:30:24 +460693**
Quench Detector(s) Trip: B8DSA4_A3VT Int. 100, Tq: -24
5 Minute: Quench Delay File: None Indicated, Systems Running.
Beam Loss Monitors (Rads/Hr): N/A, down from MS-001
Main Magnet Power Status: At Injection Current, starting to go towards Park?
DX Heaters: None fired.

Technical Notes / Sequence of Events: After Don Bruno completed the Blue quench link recovery, **(13:05:52)** we found that power supply control via psall was not working (most fields were blank). There was an alarm for the PS Server, but checking it from the StartUpTool yielded no errors. Al Marusic found that acnlin89 was down (including the CDEV name server). Restoring this machine cleared the communications problem for psall. -JPJ **(15:03:44)** Blue Quench Link, from the MCR: A blue QLI occurred when a "here to zero" was sent while sitting at injection. The Slowfactor on the PET page was set at one. George was contacted about the wfgman setting the appropriate Slowfactor. He reported that we should have sent a "here to park" and then a "here to zero" from injection. However, he also stated that the wfgman should have prevented us from ramping from "here to zero" while sitting at injection. He is going to speak with Al about this. -jak & np

QLI Recovery TAPE Start: **15:23:10** Link Recovered Time: **15:30:46** Down Time for Blue Ring: 7 hours **(420 minutes)**

Quench Analysis: Recovering from Maintenance.
(Counter = No counts)

Tuesday-November 30, 2004: **MS-008, Blue Quench: File# = 1101826449**
Permit ID: **2b-ps1** Timestamp: **09:54:08 +1496892** Beam Permit Fail Timestamp: **07:02:20 +2047338**
QPAControl / Timing Resolver: No faults indicated, group 1 shows QP03-R2BBQF2-bi1-qd2-qp first to fail.
Quench Detector(s) Trip: 10a-qd1, only one tripped: B9QFQ2_VT Int. 1, Tq: 307909
5 Minute: Quench Delay File: None, Systems Running.
Beam Loss Monitors (Rads/Hr): No beam in the machine.
Main Magnet Power Status: Zero Current
DX Heaters: None fired.

Technical Notes / Sequence of Events:
1) George requested the blue link be brought down so I ramped the p.s.'s to zero and turned off p.s. bi1-qd2-ps to bring the blue link down. -Don Bruno [blue] [ps]

2) 16:16:00, Jenn reports that George et al have just finished with hipots, so there are three zones to sweep and blue lead flow errors to correct before reestablishing circulating blue beam. -TJS, jak

QLI Recovery TAPE Start: **16:29:07** Link Recovered Time: **16:36:48** Estimated Down Time: **403** minutes

Quench Analysis: Requested Links Down
(Counter = Maintenance)

Tuesday-November 30, 2004: **MS-009, Blue Quench: File# = 1101877090**
Permit ID: **8b-ps1** Timestamp: **23:58:08 +2994258** Beam Permit Fail Timestamp: **23:58:08 +2994288**
QPAControl / Timing Resolver: No QPA faults listed, Group 1: b-QD QLI first to trip.
Quench Detector(s) Trip: 8b-qd1, B8QFQ2_VT Int. 1, Tq: -24
Also seen: 5b-qd1 = ***Finished deferred dump*** = B5QFA4_A5VT Int. 1, Tq: 85
5 Minute: Quench Delay File: Voltage Tap = B8QFQ2_VT
Beam Loss Monitors (Rads/Hr): Oscillating Pulses at the Sector 8 Triplet Region for 10 seconds.
Loss monitor b8-lm2.1 shows highest level of 45001.39, causing the Q2 magnet to quench.
Main Magnet Power Status: Ramping to Store Energy, tripping at BMD = 4018.88amps, BQM = 3760.11amps.
DX Heaters: None fired.

Technical Notes / Sequence of Events:
Postmortem Plots verify Current and Voltage changes in the Sector 8 Triplet for bi8-qf3, bi8-qd2 and bi8-qf1 magnets.

Physics Log: While chatting with Haixin, we realized that the problems are probably being caused by the radial wiggles from the chromaticity measurement! These are still on every ramp, but are now turned off for future ramps. The beta*=0.85 m squeeze surely leaks dispersion into the IR, and this gives the localized orbit problems that seem very sensitive to things like steering. Haixin will test this out with a lower-intensity non-wiggle ramp in his shift. Perhaps we'll get beam to store tonight after all. -TJS

Blue ring is under recovery from the quench. After looking at the BLM loss pattern, Todd thought that the loss localized at IP6 and 8 could be due to the radial modulation he put in for chromaticity measurement: the loss pattern has a 1Hz frequency, coincide with the radial modulation.

BLM Info: Okay, new loss monitor settings are sent. Now, the blms at Q2, which we added during the shutdown are in the permit. Their trip level is currently set at 8000rad/hr. For the ramp before which didn't cause magnet quench, the reading at the Q2 blms is about 2000-5000rad/hr and this time they read 20,000-40,000 rad/hr. I also switched g5-lm1, g6-lm1 and g8-lm1 slowloss watch to pull permit. Their trip level is set to 1200rad the same as g7-lm1. -Mei

QLI Recovery TAPE Start: **00:17:28** Link Recovered Time: **00:28:31** Estimated Down Time: **30** minutes
Quench Analysis: Beam Induced Quench, #002
(Counter = BI)